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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,751	04/15/2004	Patrick H. Dussud	MS1-1962US	7046
22801	7590	04/10/2007	EXAMINER	
LEE & HAYES PLLC 421 W RIVERSIDE AVENUE SUITE 500 SPOKANE, WA 99201			SAVLA, ARPAN P	
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			2185	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/10/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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## Office Action Summary

**Application No.**

10/824,751

**Applicant(s)**

DUSSUD, PATRICK H.

**Examiner**

Arpan P. Savla

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### **Continued Examination Under 37 CFR 1.114**

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 26, 2007 has been entered.

### **Response to Amendment**

This Office action is in response to Applicant's communication filed January 26, 2007 in response to the Office action dated October 23, 2006. Claims 1, 12, 19, 21, and 24 have been amended. Claims 1-24 are pending in this application.

## **OBJECTIONS**

### **Claims**

1. **Claim 19** is objected to because of the following informalities: The phrase "has been accessed" in lines 21 and 22-23 should read "have been accessed."

Appropriate correction is required.

## **REJECTIONS NOT BASED ON PRIOR ART**

**Claim Rejections - 35 USC § 101**

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. **Claims 1-11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.** Claims 1-11 are not limited to tangible embodiments. In view of Applicant's disclosure, paragraphs 0023 and 0025, the computer readable medium is not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g. RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, digital versatile disks (DVD) or other optical storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices) and intangible embodiments (e.g. modulated data signal, such as a carrier wave or wireless media such as acoustic, RF, infrared and other wireless media, etc.). As such, claims 1-11 are not limited to statutory subject matter and are therefore non-statutory. *It should be noted that intangible embodiments of the computer-readable medium such as modulated data signals and wireless media are accessible by a computing device.*

**REJECTIONS BASED ON PRIOR ART**

**Claim Rejections - 35 USC § 102**

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 12-17 are rejected under U.S.C. 102(b) as being anticipated by Grarup et al. (U.S. Patent 6,308,185).**

6. **As per claim 12**, Grarup discloses a method for executing statements within a program to support ephemeral garbage collection, the method comprising:

specifying a range of card table memory to watch during program execution (col. 9, lines 25-32; Fig. 4b, elements 460 and 464), the card table memory identifying a plurality of cards (col. 9, lines 19-25 and 37-41; Fig. 4b, elements 420, 450, and 452), each card being associated with one or more objects allocated within a memory heap (col. 7, lines 58-60; Fig. 4a, element 408), the memory heap being divided into a plurality of cards with each card being grouped into one of a plurality of bundles (col. 8, lines 64-67; Fig. 4b, elements 408 and 420). *It should be noted that a "remembered set" specifies a range of card table memory to watch during program execution. It should also be noted that the "array of card marks" is analogous to the "card table memory" and a "car" is analogous to a "bundle."*

and for each store statement within the program, storing a value at a memory location within the heap memory based on the store statement (col. 11, lines 17-21; Fig. 5, element 504), marking one of the plurality of cards within the card table memory based on the memory location (col. 11, lines 21-25; Fig. 5, elements 512 and 514), and tracking access to the card table memory (col. 12, lines 51-54; Fig. 7a, element 702).

**As per claim 13**, Grarup discloses specifying the range of card table memory includes calling a write-watch mechanism that performs tracking of the accesses to card

table memory (col. 9, lines 42-63). *It should be noted that the instructions within the computer program that manage the card marks provide the functionality of a "write-watch mechanism."*

7. **As per claim 14**, Grarup discloses the write-watch mechanism resides within a memory manager (col. 9, lines 42-63; col. 17, lines 34-41; Fig. 9, element 932). *It should be noted that the instructions within the computer program that manage the card marks operate within the processor, thus, the processor is analogous to the "memory manager."*

8. **As per claim 15**, Grarup discloses a bundle corresponds to a number of cards that are tracked using a page of card table memory (col. 8, lines 64-67; col. 11, lines 18-25; Fig. 4b, elements 408, 420, and 452; Fig. 5, element 512).

9. **As per claim 16**, Grarup discloses the write-watch mechanism maintains a list that identifies cards accessed within the card table memory (col. 9, lines 42-63; Fig. 4b, element 452). *It should be noted that the "card marks" are analogous to the "list." It should also be noted that "dirty" indicates "accessed."*

10. **As per claim 17**, Grarup discloses an ephemeral garbage collection process requests the list when performing a garbage collection cycle (col. 10, line 65 – col. 11, line 1).

#### **Claim Rejections - 35 USC § 103**

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**12. Claims 1-11 and 18-24 are rejected under 35 U.S.C. 103(a) as being obvious over Grarup in view of Azagury et al. (U.S. Patent 6,148,309).**

**13. As per claim 1**, Grarup discloses a computer-readable medium having computer-executable instructions for performing ephemeral garbage collection, the computer readable medium being accessible by a computing device (col. 17, lines 31-61; Fig. 9), the instructions comprising:

requesting a list from a tracking mechanism, the list identifying memory locations that have been accessed since the last ephemeral garbage collection (col. 9, lines 19-25 and 42-63; col. 10, line 65 – col. 11, line 1; Fig. 4b, element 452), each memory location corresponding to one of a plurality of cards associated with a card table, wherein the card table identifies one or more cards that have been accessed (col. 9, lines 19-25 and 37-57; Fig. 4b, element 450), each card being associated with one or more objects allocated from within a memory heap (col. 7, lines 58-60; Fig. 4a, element 408). *It should be noted that the “card marks” are analogous to the “list” and the “array of card marks” is analogous to the “card table.” It should also be noted that the instructions within the computer program that manage the card marks provide the functionality of a “tracking mechanism.” Lastly, it should also be noted that in order to search the card mark it is inherently required the card mark be requested.*

for each marked card, determining at least one accessed object within the marked card (col. 12, lines 51-54 and col. 12, line 66 – col. 13, line 1; Fig. 7a, elements 702 and 708); *It should be noted that “dirty” indicates “accessed.”*

and performing garbage collection upon the at least one accessed object (col. 13, lines 1-4; Figs. 7b-7e).

Grarup does not expressly disclose identifying at least one marked bundle based on the list, wherein the marked bundle corresponds to marked cards that represents a subset of the plurality of cards having associated objects that have been accessed since a last garbage collection process;

for each marked bundle, determining at least one marked card within the marked bundle.

Azagury discloses identifying at least one marked bundle based on the list, wherein the marked bundle corresponds to marked cards that represents a subset of the plurality of cards having associated objects that have been accessed since a last garbage collection process (col. 4, lines 35-49). *It should be noted that the “time-stamp of the remembered set for each car” is analogous to the “list” and the “car” is analogous to the “marked bundle.”*

for each marked bundle, determining at least one marked card within the marked bundle (col. 4, lines 45-49). *It should be noted that “cards that have been modified in the last collection cycle” are analogous to “marked cards.”*

Grarup and Azagury are analogous art because they are from the same field of endeavor, that being generational garbage collection systems.



At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Azagury's time stamps within Grarup's generational garbage collection process.

The motivation for doing so would have been to improve garbage collection efficiency by keeping track of which cards should be scanned for which car collection. Otherwise, the cards are rescanned again and again (Azagury, col. 4, lines 32-34).

Therefore, it would have been obvious to combine Grarup and Azagury for the benefit of obtaining the invention as specified in claim 1.

14. **As per claim 2**, the combination of Grarup/Azagury discloses the tracking mechanism comprises a write-watch mechanism (Grarup, col. 9, lines 42-63). *See the citation note for claim 13 above.*

15. **As per claim 3**, the combination of Grarup/Azagury discloses the write-watch mechanism operates within a memory manager (Grarup, col. 9, lines 42-63; col. 17, lines 34-41; Fig. 9, element 932). *See the citation note for claim 14 above.*

16. **As per claim 4**, the combination of Grarup/Azagury discloses the write-watch mechanism records a first access to the memory location (Grarup, col. 9, lines 42-63).

17. **As per claim 5**, the combination of Grarup/Azagury discloses the list comprises a bitmap and each bit within the bitmap corresponds to one of the plurality of cards (Grarup, col. 9, lines 37-57).

18. **As per claim 6**, the combination of Grarup/Azagury discloses the list of memory locations is maintained in response to a request from the ephemeral garbage collection

process (Grarup, col. 10, line 65 – col. 11, line 1). *See the citation note for claim 12 above.*

19. **As per claim 7**, the combination of Grarup/Azagury discloses resetting the list of memory locations (Grarup, col. 12, lines 62-66; Fig. 7a, element 707). *It should be noted that “clean” is analogous to “reset.”*

20. **As per claim 8**, the combination of Grarup/Azagury discloses the subset of cards corresponds to a number of cards that are tracked using a page of memory storing the card table (Grarup, col. 8, lines 64-67; col. 11, lines 18-25; Fig. 4b, elements 408, 420, and 452; Fig. 5, element 512).

21. **As per claim 9**, the combination of Grarup/Azagury discloses identifying the marked bundle comprises marking a bit associated with the marked bundle within a bundle bitmap based on the memory locations within the list (Azagury, col. 4, lines 38-39).

22. **As per claim 10**, the combination of Grarup/Azagury discloses marking the bit comprises setting the bit (Azagury, col. 4, lines 38-39).

23. **As per claim 11**, the combination of Grarup/Azagury discloses determining the at least one marked card comprises scanning a card bitmap having a bit for each of the plurality of cards, the bit for each marked card being different than another bit associated with one of the cards that was not accessed (Grarup, col. 12, lines 56-61; Fig. 7a, elements 703 and 704). *It should be noted that an accessed card has a “dirty” bit associated with it which is different than non-accessed card which has a “clean” bit associated with it.*

24. **As per claim 18**, the combination of Grarup/Azagury discloses the ephemeral garbage collection process determines a marked bundle based on the list (Azagury, col. 4, lines 35-49).

25. **As per claim 19**, Grarup discloses a system for performing ephemeral garbage collection, the system comprising:

a processor (col. 17, lines 36-38; Fig. 9, element 932);

and a memory into which a plurality of instructions are loaded and into which a plurality of objects are dynamically allocated (col. 17, lines 43-45; Fig. 9, element 934), the memory having a heap into which the objects are allocated (col. 1, lines 61-63; Fig. 1, elements 10 and 20), the heap being divided into a plurality of cards which are grouped into a plurality of bundles (col. 8, lines 64-67; Fig. 4b, elements 408 and 420), each card being associated with one or more of the plurality of objects (col. 7, lines 58-60; Fig. 4a, element 408); wherein upon execution of the plurality of instructions by the processor, the system being configured to:

request a list from a tracking mechanism, the list identifying memory locations that have been written into since a last garbage collection cycle (col. 9, lines 19-25 and 42-63; col. 10, line 65 – col. 11, line 1; Fig. 4b, element 452), each memory location corresponding to one of a the plurality of cards associated with a card table, wherein the card table identifies one or more cards that have been accessed (col. 9, lines 19-25 and 37-57; Fig. 4b, element 450), *See the citation note for similar limitation in claim 1 above.*

determine, for each marked card, the one or more objects that has been accessed (col. 12, lines 51-54 and col. 12, line 66 – col. 13, line 1; Fig. 7a, elements 702 and 708). *See the citation note for similar limitation in claim 1 above.*

and perform garbage collection upon the one or more accessed objects (col. 13, lines 1-4; Figs. 7b-7e).

Grarup does not expressly disclose identifying at least one marked bundle based on the list, wherein the marked bundle corresponds to marked cards that represents a subset of the plurality of cards having associated objects that have been accessed since a last garbage collection process;

determining, for each marked bundle, at least one marked card within the marked bundle, the at least one marked card indicating that one or more objects associated with the marked card has been accessed.

Azagury discloses identifying at least one marked bundle based on the list, wherein the marked bundle corresponds to marked cards that represents a subset of the plurality of cards having associated objects that have been accessed since a last garbage collection process (col. 4, lines 35-49);

determining, for each marked bundle, at least one marked card within the marked bundle, the at least one marked card indicating that one or more objects associated with the marked card has been accessed (col. 4, lines 45-49);

Grarup and Azagury are analogous art because they are from the same field of endeavor, that being generational garbage collection systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Azagury's time stamps within Grarup's generational garbage collection process.

The motivation for doing so would have been to improve garbage collection efficiency by keeping track of which cards should be scanned for which car collection. Otherwise, the cards are rescanned again and again (Azagury, col. 4, lines 32-34).

Therefore, it would have been obvious to combine Grarup and Azagury for the benefit of obtaining the invention as specified in claim 19.

26. **As per claim 20**, the combination of Grarup/Azagury discloses the tracking mechanism comprises a write-watch mechanism (Grarup, col. 9, lines 42-63). *See the citation note for claim 13 above.*

27. **As per claim 21**, the combination of Grarup/Azagury discloses the write-watch mechanism operates within a memory manager (Grarup col. 9, lines 42-63; col. 17, lines 34-41; Fig. 9, element 932) and set bits in the card table upon access to at least one of the plurality of cards (Grarup, col. 9, lines 42-63; col. 11, lines 18-25; Fig. 4b, elements 450 and 452; Fig. 5, Element 514).

28. **As per claim 22**, the combination of Grarup/Azagury discloses the subset of cards corresponds to a number of cards that are tracked using a page of memory storing the card table (Grarup, col. 8, lines 64-67; col. 11, lines 18-25; Fig. 4b, elements 408, 420, and 452; Fig. 5, element 512).

29. **As per claim 23**, the combination of Grarup/Azagury discloses the marked bundle being identified by a marked bit associated with the marked bundle within a bundle bitmap based on the list (Azagury, col. 4, lines 38-39).

30. **As per claim 24**, the combination of Grarup/Azagury discloses setting a bit in the card table to identify one or more cards that have been accessed (Grarup, col. 9, lines 42-63; col. 11, lines 18-25; Fig. 4b, elements 450 and 452; Fig. 5, Element 514).

### **Response to Arguments**

31. Applicant's arguments filed January 26, 2007 with respect to **claims 1-24** have been fully considered but they are not persuasive.

32. With respect to Applicant's argument in the first full paragraph on page 10 of the communication filed January 26, 2007 which states, "The Grarup reference discloses access to objects that are reflected in cards, including an array of cards (many cards), but does not disclose a table that reflects access to the cards themselves. Applicant uses the card table itself. The garbage collection process uses information obtained from the tracking mechanism to identify the bundles, and the card table is used to identify the cards. This card table that identifies cards that have been accessed, as recited in amended claim 1 is not present in the Grarup reference. For at least the reasons discussed above, amended Claim 1 is allowable in view of the Grarup reference" the Examiner respectfully disagrees.

The Examiner refers Applicant to paragraph 0029, lines 1-7 of Applicant's specification which states:

**"In order to aid in the ephemeral garbage collection process, the program data 307 also includes a card table 404. The card table identifies which cards in the generations 410-416 have an object that has been accessed (e.g., written to). When there are multiple generations (e.g., generations 412-416), there may be one card table for each generation or one card table may handle all the cards for all the generations. In one implementation, the card table may be a bit map having one bit for each card. The bit for each card indicates which cards are associated with an object that has been accessed."** (emphasis added)

As is clearly shown in cited portion of Applicant's specification directly above, contrary to Applicant's assertion, Applicant's card table identifies which cards have an object that has been accessed (i.e. Applicant's card table identifies access to objects associated with their respective cards), not access to the cards themselves.

In addition to Applicant's own admittance that Grarup discloses access to objects that are reflected in cards, the cited portions of Grarup in the rejection of claim 1 above clearly disclose Grarup's array of card marks (i.e. card table) identifies whether the cards [associated with the card marks] are dirty (i.e. whether objects associated with their respective cards have been accessed). Accordingly, Grarup sufficiently discloses the card table identifies one or more cards that have been accessed.

33. With respect to Applicant's argument in the first full paragraph on page 11 of the communication filed January 26, 2007 which states, "Amended Claim 12 is directed at the store process. Thus, as further described in the specification, by tracking the memory access to the card table that identifies access to cards, and not just access to

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objects that the cards represent, the present technique does not have the performance overhead of locating and setting a card bundle each time a store operation is encountered in the code. Grarup does not does not teach updating a table on access to cards and thus does not teach or suggest amended Claim 12. Therefore, the Applicant respectfully submits that the §102 rejection of amended Claim 12 is improper, and respectfully requests reconsideration and withdrawal of this rejection" the Examiner respectfully disagrees.

Again, the Examiner refers Applicant to paragraph 0029, lines 1-7 of Applicant's specification as stated re-stated above. Contrary to Applicant's assertion, Applicant's card table identifies which cards have an object that has been accessed (i.e. Applicant's card table identifies access to objects associated with their respective cards), not access to the cards themselves.

Again, in addition to Applicant's own admittance that Grarup discloses access to objects that are reflected in cards, the cited portions of Grarup in the rejection of claim 12 above clearly disclose Grarup's array of card marks (i.e. card table) identifies whether the cards [associated with the card marks] are dirty (i.e. whether objects associated with their respective cards have been accessed). Accordingly, Grarup sufficiently discloses updating a table on access to cards.

34. With respect to Applicant's argument in the first full paragraph on page 13 of the communication filed January 26, 2007, the Examiner asserts that Grarup sufficiently



discloses the card table identifies one or more cards that have been accessed for the reasons discussed above with regards to claim 1.

35. With respect to Applicant's argument in the third full paragraph on page 13 of the communication filed January 26, 2007 which states, "Further amended claim 21 recites **"wherein the write-watch mechanism resides within a memory manager and sets bits in the card table upon access to at least one of the plurality of cards."** Also amended claim 24 recites **"further comprising setting a bit in the card table to identify one or more cards that have been accessed."** Setting a bit in the card table to identify cards that have been access is not disclosed in the Grarup reference. Therefore, the Applicant respectfully submits that the §102 rejections of amended Claims 21-24 is improper, and respectfully requests reconsideration and withdrawal of this rejection" the Examiner respectfully disagrees.

The Examiner refers Applicant to the cited portions used in the rejections of claims 21 and 24 above and more specifically to Grarup col. 9, lines 53-57 which states:

"That is, lowest bit 468 is generally arranged to indicate whether card mark 452a or, more specifically, a card (as shown in FIG. 4a) associated with card mark 452a, is "dirty." Dirty cards are cards where pointers have been stored since the last garbage collection."

As is clearly shown in the cited portion of Grarup directly above, a bit is set in the array of card marks (i.e. card table) upon storing pointers into the associated card (i.e. upon access to the associated card). Accordingly, Grarup sufficiently discloses setting bits in the card table upon access to at least one of the plurality of cards as well as setting a bit in the card table to identify one or more cards that have been accessed.

**Conclusion**

**STATUS OF CLAIMS IN THE APPLICATION**

The following is a summary of the treatment and status of all claims in the application as recommended by MPEP 707.70(i):

**CLAIMS REJECTED IN THE APPLICATION**

Per the instant office action, **claims 1-24** have received a first action on the merits and are subject of a first action non-final.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arpan P. Savla whose telephone number is (571) 272-1077. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on (571) 272-4098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Arpan Savla  
Art Unit 2185  
March 30, 2007



SANJIV SHAH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100